MACHINE DESIGN

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Including 26 regular issues of MACHINE DESIGN plus four special issues—*The Electric Motors Reference Issue, The Seals Reference Issue, The Plastics Reference Issue* and *The Electric Controls Reference Issue.* Only articles and editorial items one-half page or larger are indexed.

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1. Title.
2. Author's last name (see Author Index for complete name). Departments in regular issues are denoted by the following code:
   - News .....Engineering News
   - Scan .....Scanning the Field for Ideas
   - DIA .....Design in Action
3. Date of issue. MACHINE DESIGN *Reference Issues* are denoted by the following code:
   - E .....*Electric Motors* (March 19)
   - S .....*Seals* (June 11)
   - P .....*Plastics* (September 17)
   - C .....*Electric Controls* (December 31)
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Steam-Fired Missile Saves Wear on the Launch Pad	News	10/8, 6	(0.7)
First SNAP-8 Strives for 10,000-hr Continuous Life	News	10/8, 12	(0.5)
Arc Chooses Its Path in a New Type of Spark Plug	News	10/22, 10	(0.5)
Newest of '65s: Sports-Car Handling and Zero to 60 in 7 Sec	News	12/3, 14	(0.5)
Stubby Stack of Dredger Requires Fan Assist	DIA	1/2, 96	(1.0)
Individual Engines Drive BARC's Ten-Foot Wheels	DIA	3/12, 147	(1.0)
Chambered Crankcase Improves Outboard Motor Efficiency	DIA	7/30, 90	(2.0)
Volkswagen Engine Powers Cart	DIA	11/5, 149	(1.0)

32-34. Drives, Transmissions, Drive Components

V-Belt Drives	Lavoie	1/16, 179	(9.5)
Designing Planetary Gear Trains	Myatt	1/16, 203	(2.0)
The Limitations of Epicyclic Gears	Tuplin	1/30, 124	(3.0)
O-Ring Drives	Boyce	2/13, 166	(4.0)
Gear Noise	Schlegel	2/27, 134	(9.0)
Operating Pressure Angle of Enlarged Spur Pinions	Michalec	4/23, 247	(4.0)
Surface Durability of Helical Gears	Wellauer	5/7, 156	(9.0)
Traction Drives, Part 1	Kraus	7/2, 106	(6.6)
Traction Drives, Part 2	Kraus	7/16, 147	(6.0)
Epicyclic Gear Train	Lewis	7/16, 175	(5.0)
New Tooth Shape Distributes Stresses	News	6/4, 10	(0.6)
Projecting Pins Keep New Drive Belt	News	6/4, 12	(0.7)
60-Million Dollar Crystal Ball	News	6/4, 24	(1.0)
Flexible Rack Rolls Around Corner	Scan	1/16, 162	(1.0)
Pinched Planets Control Speed	Scan	2/13, 144	(1.0)
Louvers Form Gear Teeth	Scan	4/9, 141	(0.5)
Orbiting Belts Provide Counter-Rotation	Scan	5/7, 153	(0.5)
Shuttling Ball Provides One Way Drive	Scan	6/18, 181	(1.0)
Soft Rim Provides for Belt Bite	Scan	6/18, 183	(0.5)
Deformable Rotor Produces Low-Speed Output	Scan	7/16, 142	(1.0)
Traveling Worm Indicates Torque	Scan	10/22, 187	(1.0)
Vacuum Actuates Tape Drive	Scan	12/17, 151	(0.5)
In-Line Drive Simplifies Helicopter Transmission System	DIA	7/30, 86	(1.0)
Missile Tower Drive Prevents Slipping and Skewing	DIA	8/27, 146	(2.0)
Tapered Rack Simplifies Blade Hoist Design	DIA	11/19, 157	(1.0)

351, 352. Bearings

TFE-Fabric Bearings	Cress	1/16, 154	(8.0)
Predicting Bearing Torque in Large Diameter, Thin-Section Bearings	Burgmeier	1/30, 118	(6.0)
Misaligned Roller Bearings	Dareing	2/13, 175	(5.0)
Unusual-Precision Bearings	Hanau	2/27, 148	(6.0)
Gas Bearings	Sternlicht	4/9, 162	(4.0)
MHD Bearings	Kuzma	4/23, 206	(5.0)
Cryogenic Bearings	Hanau	6/4, 122	(7.0)
Metallic Flexures	Rothruss	9/10, 218	(5.5)
The Four-Point Contact Bearing, Part 1	Duguid	9/24, 150	(5.0)
The Four-Point Contact Bearing, Part 2	Duguid	10/8, 164	(5.0)
Instrument Bearing Torque	Christopher	10/22, 197	(3.0)
High-Temperature Bearings	Anderson	11/5, 163	(19.0)
Magnetic and Electrostatic Bearings	McHugh	11/5, 191	(3.6)
Out-of-Round Bearings	Goldberg	11/19, 191	(5.0)
Standard-Priced Bearing Lasts Six Times as Long	News	1/2, 8	(0.8)
Air-Turbine Rotor Spins on Gas Bearings at 73,600 rpm	News	5/21, 8	(0.6)
Foam Slab Distributes Air-Film	Scan	5/21, 182	(0.5)
Flexible Orifice Adjusts Bearing Flow	Scan	8/27, 155	(1.0)
Composite Bearing Transmits Axial and Radial Motion	Scan	12/3, 155	(0.5)
Balanced Bearing Loads Prevent Wheel Slip	DIA	3/12, 144	(2.0)
Rafts Float Lathes Down Oil Bearing Assembly Line	DIA	12/3, 140	(2.0)
Multistation Drilling Machine Rides on Ball Bushings	DIA	12/3, 143	(1.0)

353-359. Clutches, Brakes, Shafts, Couplings

Hooke's Joints	Bossler	6/18, 194	(5.0)
Disc Brakes	Parker	7/16, 180	(3.4)
Shaft Couplings	Wood	12/17, 157	(2.0)
New Light-Weight Contenders	News	1/30, 23	(0.5)
Flexible-Rigid Coupling Absorbs Shaft-Misalignment Stresses	News	2/27, 14	(0.7)
Flat Ball Joint Transmits Torque	News	5/21, 180	(0.5)
Beryllium Brakes Refused to Wear Out	News	6/18, 6	(0.5)
Road Push on Front Wheels Actuates Truck's Rear Brakes	News	11/19, 8	(0.9)
Misalignment Stresses Are Shared Among Coupling's Truss Members	News	12/17, 6	(0.6)
Coupling Adjusts Itself to Accommodate Misalignment	Scan	1/2, 113	(0.5)
Belt Steers Roller to Maintain Alignment	Scan	1/2, 113	(0.5)
Spinning Cone Spreads Thin Film	Scan	3/12, 156	(1.0)
Flexing Rod Transmits Thrust	Scan	3/26, 176	(0.5)
Balls Form Snap Action Toggle	Scan	6/4, 131	(1.0)
Wobble Plate Transmits Rotary Motion	Scan	6/18, 184	(0.6)
Nested Splines Provide Concentric Drive	Scan	7/30, 101	(1.0)
Flexing Diaphragm Accommodates Torque Without Rotation	Scan	8/13, 133	(0.5)
Wedge Rollers Lock Drive	Scan	8/27, 156	(1.0)
Tension Actuates Pinched-Roller Brake	Scan	10/8, 158	(1.0)
Rotary Coupling Doesn't Push	Scan	11/5, 157	(0.5)
Elastic Rollers Soak Up Shock	Scan	12/3, 155	(0.5)
Double-Surface Drum Brakes Small Planes	DIA	4/9, 128	(1.0)
Self-Compensating Hydraulic System Balances Braking Force	DIA	4/23, 211	(1.0)
Multicompartment Wheel Drives Experimental Car	DIA	7/16, 132	(1.0)
Flexible Shafts Move VTOL Nacelles	DIA	8/13, 125	(1.0)
Spinning Sponge and Shifting Rollers Generate Suds	DIA	9/10, 169	(1.0)
Slipping Clutch Governs Tractor Speed	DIA	11/19, 158	(2.0)
Centered Axle Lengthens Trailer Tire Life	DIA	12/3, 144	(1.0)

36. Mechanisms

Four-Bar Linkages for Straight-Line Motion	Kraus	2/13, 186	(5.0)
Double-Lever Mechanisms	Tao	3/12, 159	(8.0)
Four-Bar Linkages	Tao	3/26, 190	(7.0)
Balancing Loaded Linkages	Tao	4/9, 151	(6.0)
Space Crank Mechanisms	Harrisberger	9/10, 170	(6.0)
Rotating Cams Lower the Walking Gear	News	2/13, 12	(0.5)
Picture-Taking Robot Would Tumble Over the Moon	News	3/26, 8	(0.7)
Wayward Belt Aligns Itself	News	5/21, 181	(0.5)
Paddlewheel Blade	News	9/10, 24	(0.5)
Self-Erecting Space Structures	News	11/5, 22	(0.7)
Wire Tendons Control Spring Arm	Scan	1/2, 115	(1.0)
Couple Transfer Wheel Loads	Scan	1/2, 117	(1.0)
Axial Cam Indicates Power	Scan	2/27, 143	(1.0)
Temperature Controls Fan Pitch	Scan	4/23, 223	(1.0)
Adjustable Weights Cancel Imbalance	Scan	5/7, 154	(1.0)
Rotating Mounts Distribute Spring Load	Scan	7/2, 115	(1.0)
Radial Teeth Provide for Face-Cam Adjustment	Scan	7/30, 99	(0.6)
Acceleration Actuates Ball Clamp	Scan	9/10, 176	(1.0)
Balance Spools Compensate for Oscillation	Scan	9/24, 155	(1.0)
Angled Link Converts Rotary Motion to Reciprocating	Scan	9/24, 158	(0.5)
Flat Rollers Control Belt Drive	Scan	10/8, 159	(1.0)
Reflections Indicate Alignment	Scan	10/8, 160	(0.5)
Two-Part Feet Allow Bubble Chamber to Shuffle in Any Direction	DIA	1/2, 94	(2.0)
Versatile Film Cartridge Helps Hold, Measure, and Move the Film	DIA	2/13, 156	(2.0)
Rack and Pinion Ensures Positive Bulb Ejection	DIA	2/13, 158	(1.0)
Door-Hinge Rotor Reduces Drag and Vibration	DIA	2/13, 159	(1.0)
Magazine-Loaded Tape Recorder Stores Instant Phone Numbers	DIA	2/27, 130	(2.0)
Light Gate Blocks Heat When Endless Film Is Stopped	DIA	3/12, 142	(2.0)
Dial Plate Updates Combination Lock	DIA	4/23, 212	(2.0)
Archimedes Works for Finnish Log Weigher	DIA	5/7, 140	(1.0)
Rotating Take-Up Assembly Plaits Power Cable	DIA	7/12, 105	(1.0)
Speedometer Recorder Keeps Track of Driver	DIA	7/16, 133	(1.0)
Trident Jet Rides on Off-Center Nosewheels	DIA	7/16, 134	(2.0)
Wind-Up Racer Does 40 mph	DIA	10/22, 176	(1.0)
Reduced-g Accelerator Simulates Space-Bound Fuel Tank	DIA	11/5, 147	(1.0)
Powered Ladder Maneuvers in Space Tank	DIA	12/17, 139	(1.0)

Assembly Components

41. Fasteners

Metal-in-Plastic Inserts	Strasser	1/16, 174	(5.0)
Determining Preload in a Bolted Joint	Baumgartner	2/13, 180	(6.0)
Designing for Semitubular Riveting	Buchanan	3/12, 150	(6.0)
Fastening Wire Forms	Wayne	7/2, 116	(3.0)
Corrosion in Threaded Fasteners	Hood	12/17, 153	(4.0)
Adjustable Locknut Holds Without Thread Squeeze	Scan	1/30, 110	(0.5)
Triple Piston Controls Bolt Lock	Scan	9/24, 159	(0.6)

42. Springs, Vibration and Shock Isolaters

Storing Energy in Springs	Gwinn	3/26, 166	(7.0)
Compression Springs	Chandler	8/13, 159	(4.0)
New Suspension Smooths the Ride of Off-Highway Hauler	News	7/16, 8	(0.5)
New Viscoelastic Damping Material Flattens the Resonance Curve	News	8/13, 12	(0.5)
Pinched Elastomer Absorbs Shock	Scan	1/16, 163	(0.5)
Resilient Shaft Absorbs Shock	Scan	2/13, 172	(0.5)
Pivoted Spring Contacts Clutch Engagement	Scan	2/27, 146	(0.5)
Shattering Tube Is One-Shot Shock Absorber	Scan	4/9, 139	(0.5)
Stacked Springs Provide Adjustable Rate	Scan	6/4, 130	(0.5)
Buckled Column Is Constant-Force Spring	Scan	9/10, 178	(1.0)
Spring Wrap-Up Controls Torque	Scan	10/22, 184	(1.0)
Falling Weight Simulates Nuclear Blast	DIA	9/10, 166	(2.0)

43. Other Assembly Components

Parts for Automatic Feeding	Taylor	3/26, 188	(2.0)
SST-Tire Design Poses No New Problem	News	7/16, 6	(0.6)
Automobile Aquaplaning	News	7/16, 26	(1.0)
Ice-Gripping Studs Go On Production Tires	News	10/22, 6	(0.6)
Twenty Wheels Land a Big Jet on an Unpaved Field	News	11/5, 8	(0.7)
New Fiber Combination Builds Comfort into the Radial-Ply Tire	News	11/5, 14	(0.6)
Flexible Strips Form Rigid Boom	Scan	7/16, 146	(0.5)

Materials

51, 52. Metals

Low Temperature Steels	Parker	1/2, 100	(12.0)
Residual Stresses in Steel	Littmann	2/27, 166	(3.2)
Cast Irons and Steels	Wallace	3/12, 169	(32.0)
Refractory Metals	Keeler	7/2, 96	(6.0)
Bending Strength in the Plastic Range	Gavalis	7/2, 129	(5.0)
High Temperature Steels	Hall	6/4, 136	(8.0)
Beryllium-Copper Alloys	Wikle	7/16, 153	(19.0)
Physical Properties	Borg	7/30, 113	(2.0)
Malleable-Iron Castings	(Article)	8/13, 140	(3.0)
Aluminum Impact Extrusions	Katz	8/27, 150	(5.0)
How To Select Brazing Alloys	Lawless	8/27, 174	(11.0)
Five Ways to Improve Gray-Iron Castings	Caine	10/22, 200	(1.0)
Putting Muscles in Metals	Nachtman	11/19, 162	(6.0)
Toughness and Ductility of Metals	Sachs	12/3, 157	(4.0)
Giant Loom Weaves Metal	News	6/18, 10	(0.5)
Heat Treating While Brazing Saves Operation	Scan	1/2, 114	(0.5)
Pleats Permit Honeycomb Flexing	Scan	7/16, 144	(0.5)
Welded Rollup Forms Spiral Condenser	Scan	9/10, 177	(0.5)

53. Plastics

TFE-Fabric Bearings	Cress	1/16, 154	(8.0)
Polyimides	Todd	4/23, 228	(10.0)
Filament Winding Goes Commercial	Keegin	5/7, 130	(4.0)
Fluorocarbon Plastics	Ricklin	5/7, 149	(3.0)
Selecting Plastics	Jacob	P 9/17, 4	(8.0)
Designing with Plastics	(Chapter)	P 9/17, 12	(7.0)
Forming and Fabricating	Cariyon	P 9/17, 19	(4.0)
Assembly Methods	(Chapter)	P 9/17, 23	(7.0)
Decoration and Surface Finish	Scharnberg	P 9/17, 30	(3.0)
Laminated Plastics	Muller	P 9/17, 53	(6.0)
Reinforced Thermosets	Sprang	P 9/17, 39	(3.0)
Reinforced and Filled Thermoplastics	Murphy	P 9/17, 42	(5.0)
ABS	Whitney	P 9/17, 47	(4.0)
Acetals	Hardiesty	P 9/17, 51	(5.0)
Acrylics	Pierson	P 9/17, 56	(2.0)
Cellulose Acetate	Black	P 9/17, 58	(2.0)
Cellulose Propionate	Black	P 9/17, 60	(1.4)
Ethyl Cellulose	Bird	P 9/17, 61	(2.0)
Cellulose Acetate Butyrate	Hill	P 9/17, 63	(1.5)
Chlorinated Polyethers	Hanna	P 9/17, 65	(2.0)
TFE-FEP Fluorocarbons	Jolley	P 9/17, 67	(6.5)
CTFE Fluorocarbons	Bringer	P 9/17, 73	(2.5)
Polyamides (Nylons)	Carswell	P 9/17, 76	(4.0)
Polycarbonates	McCubbin	P 9/17, 80	(3.0)
Polyethylenes	Estes	P 9/17, 83	(4.0)
Polyimides	Todd	P 9/17, 87	(5.0)
Polypropylenes	Jones	P 9/17, 92	(4.0)
Polystyrenes	Otting	P 9/17, 96	(5.0)
Vinyls	Bulkley	P 9/17, 101	(6.0)
Alkyds	Beers	P 9/17, 107	(2.0)
Allylics	Beacham	P 9/17, 109	(3.0)
Aminos	Sunderland	P 9/17, 112	(4.0)
Epoxies	Reese	P 9/17, 116	(3.0)
Phenolics	Borro	P 9/17, 119	(4.0)
Polyesters	Carpenter	P 9/17, 123	(3.0)
Silicones	Kin	P 9/17, 126	(4.0)
Urethanes	Backus	P 9/17, 130	(4.0)
TFE Fluorocarbons for Gaskets and Packings	Horvath	9/24, 166	(7.0)
Plastic-Shoe Leather Tries Industrial Jobs	News	6/18, 10	(0.5)
Glass Fiber Motor Cases Test Out Stronger	News	7/30, 12	(0.6)
Metal Ions Hold Together a New Type of Plastic	News	9/24, 10	(0.6)
Graph Matching Locates the Proper Thermoplastic	News	10/8, 8	(0.6)
New Process Promises to Tailor Plastics to Each Particular Job	News	12/17, 10	(0.5)
Plastic Clutch	Scan	6/18, 182	(1.0)
Squashed Cylinder Records Shock	Scan	8/13, 134	(1.0)
Resilient Roll Controls Bend Radius	Scan	8/27, 157	(0.5)

54-58. Nonmetallics (except Plastics), Composites

Fastening Carbon and Graphite Parts	Simbeck	4/9, 147	(4.0)
Transparent Materials	Wittman	4/23, 286	(2.6)
Wood Technology	Barnes	7/30, 78	(8.0)
Elastomers for Sealing	Malcolmson	10/8, 196	(3.7)
Updating the Refractory Materials	Kendall	10/22, 208	(5.0)
Sandwich Panels, Part 1: Uniform Surface Pressure and Uniaxial Compression	Gallagher	12/17, 165	(5.0)
Self-Dimming Glass Cuts Glare Out of Sunlight	News	2/13, 8	(1.0)
Laminate Core Reduces Stresses By Rebonding Itself to the Skins	News	4/9, 14	(0.6)
Foaming Bulkheads May Plug Punctures in Spacecraft	News	7/30, 14	(0.5)
Pyroceram Hull Designed for Deep-Sea Vehicle	News	8/27, 6	(1.0)
Bearing Steel Extrudes Before Molybdenum Disulfide Breaks Down	News	9/10, 8	(0.5)
Increasing MoS_2 Content Improves Properties of Greases	News	11/19, 12	(0.5)
Glue and Tape Form Threaded Insert	Scan	1/30, 112	(0.5)

Manufacturing Methods and Processes

61-63. Metal Casting, Shaping, Forming

Bonding Dissimilar Metals by Coextrusion	Lowenstein	5/21, 227	(3.4)
Four-Slide Parts, Part 1: The Process, the Parts, the Materials	Skeiskey	7/30, 92	(6.0)
Four-Slide Parts, Part 2: Tolerances, Finishes, Design	Skeiskey	8/13, 136	(4.0)
Nonmechanical Metal-Working Processes	Faust	8/13, 163	(4.1)
Aluminum Impact Extrusions	Katz	8/27, 150	(5.0)
Better Investment Castings	Hockin	10/8, 162	(2.0)
Magnetic Hammer Proves Its Worth, Goes into "Production"	News	10/8, 12	(0.5)
Chrysler Instrument Panel Named Zinc Die Casting of the Year	News	10/8, 14	(0.7)
Core Dissolving Provides Key to Complex Die Castings	News	12/17, 14	(0.5)
Eccentrically Mounted Hammers Beat Billets into Barrels	DIA	10/8, 152	(2.0)

64. Metal Joining

Minimizing Distortion in Weldments	Kudelko	2/27, 154	(3.0)
Ultrasonic Welding	(Article)	4/9, 130	(8.0)
Electron Beam Welding, Part 1: Joint Design	Miller	4/23, 218	(5.0)
Electron-Beam Welding, Part 2: Materials and Costs	Miller	5/7, 165	(4.0)
Button Welding	Motl	11/5, 150	(6.0)
The Shell Takes Shape; Aluminaut Readies for Sea	News	3/26, 6	(1.0)
Friction Welding Rubs Together Stainless Steel and Aluminum	News	12/3, 10	(0.6)

65-68. Machining, Other Processes

Photoetched Parts	Strauss	6/4, 132	(4.0)
Electrocoating	(Article)	6/18, 160	(2.0)
Cold Forming of Thermoplastics	Ehner	9/24, 189	(3.8)
High-Pressure Rollers Peel Exotic Metal Billets	News	7/30, 14	(0.5)
Electronic Centerer Radios Signals from Spindle	DIA	1/30, 98	(1.0)
Oscillating Shaft Allows Stamper to Handle Thick or Thin Bungs	DIA	1/30, 100	(1.0)
Floating Tool Carves Precision Scales	DIA	11/19, 160	(2.0)
Grit Guns Blast Burrs from Precision Parts	DIA	12/3, 145	(1.0)

Design Theory and Techniques

71. Mechanics, Dynamics, Vibration

Measuring Angular Vibration	Degenholtz	3/12, 167	(2.0)
Describing Shock	Neprud	4/9, 142	(5.0)
Clamped Ring Segments	Ojalvo	5/21, 219	(4.0)
Shock and Vibration Technology	Morrow	6/18, 208	(2.2)
Monitoring Shock	Charkey	7/16, 136	(6.0)
Damping of Structures	Henderson	7/30, 119	(3.7)
Random-Vibration Analysis	Meeder	9/10, 179	(6.0)
Critical Speeds of Stepped Shafts	Rieger	9/10, 213	(4.0)
Mechanical Network Analysis, Part 1: Circuit Elements	Jewusiak	10/22, 180	(4.0)
Mechanical Network Analysis, Part 2: Network Algebra	Jewusiak	11/5, 182	(5.0)
Curves for Finding Phase, Shift, Transmissibility, and Amplification	Brock	11/5, 187	(3.0)
Mechanical Network Analysis, Part 3: Mechanical Impedance	Jewusiak	11/19, 185	(6.0)
Mechanical Network Analysis, Part 4: Series and Parallel Circuit Performance	Jewusiak	12/3, 165	(6.0)
Random Vibration	Geren	12/3, 171	(2.0)
Mechanical Network Analysis, Part 5: Equation Solution by Determinants	Jewusiak	12/17, 159	(6.0)
Swinging Mass Records Impacts	Scan	3/26, 176	(0.5)
Falling Weight Simulates Nuclear Blast	DIA	9/10, 166	(2.0)

72, 73. Strength of Materials, Parts

Wear Considerations in Design, Part 6	Lipson	1/2, 121	(4.0)
Thermal Stresses in Unsymmetrically Heated Circular Rings	Newman	1/2, 125	(5.0)
Wear Considerations in Design, Part 7: Surface Treatment for Wear Resistance	Lipson	1/16, 162	(7.0)
Dimensional Stability	O'Boyle	1/30, 113	(5.0)
Reactions and Bending Moments in Beams	Feng	2/13, 191	(4.0)
Buckling of Circular Bulkheads	Forray	3/12, 201	(3.0)
Stresses in Sandwich Cylinders	Gellatly	3/26, 197	(5.0)
Spring-Restrained Columns	Forray	5/7, 169	(2.0)
Fatigue Life of Structures	Frank	6/18, 203	(4.0)
Bending Strength in the Plastic Range	Gavalis	7/2, 129	(5.0)
Stress in Thick Rings	Walker	7/30, 115	(4.0)
Atmospheric Effects on Friction and Wear	Campbell	8/27, 186	(4.0)
Critical Speeds of Stepped Shafts	Rieger	9/10, 213	(4.0)
Noncircular Shafts in Torsion	Singleton	9/24, 183	(3.7)
Conical Tubular Beams	Schick	10/8, 193	(2.0)
Distortion of Circular Rings	Tabakman	10/22, 201	(7.0)
Sandwich Panels, Part 1: Uniform Surface Pressure and Uniaxial Compression	Gallagher	12/17, 165	(5.0)
"Hula Hoops" Test Multiple Fatigue Specimens	DIA	3/12, 146	(1.0)

74. Human Factors, Industrial Design

Design: Pasadena Style	Wood	1/16, 142	(5.0)
Living in Space	Barnes	1/30, 90	(5.0)
Assurance Documentation	Rossnagel	4/9, 157	(5.0)
Chimp Works Eight Days While Breathing Oxygen	News	1/2, 14	(0.6)
Redesign Upgrades Products, Ups Profits	News	2/13, 24	(1.0)
Three Men in a Sphere Try the Cramped Life of an Astronaut	News	3/12, 8	(0.6)
All-Attitude Display	News	3/12, 26	(0.5)
Luxury Lounge Tackles Turnpike Tedium	News	4/9, 6	(1.0)
Practicality and Appearance Win Industrial Design Awards	News	4/9, 22	(2.0)
Pressurized Armor Provides Mobility on the Moon	News	4/23, 6	(0.7)
Mouth-Power Pneumatics	News	4/23, 28	(0.7)
Water Pressure Simulates Space	News	5/21, 22	(0.7)
Industrial Design	News	6/18, 22	(2.0)
Artificial Gravity	News	6/18, 26	(0.5)
Manned Free Space Dynamic Simulator	News	7/16, 22	(0.7)
New G Effect Tester Creates Coriolis Forces	News	7/30, 6	(0.6)
Scuba Divers Man a Mockup To Study Zero-g	News	9/10, 14	(0.7)
Industrial Design at Wescon	News	9/10, 22	(2.0)
LEM Men	News	9/24, 26	(0.5)
Industrial Design	News	10/22, 22	(2.0)
Instrumented Dummies Test Apollo Crash-Shock Absorbers	News	11/19, 6	(1.1)
Safety Curb Steers Errant Auto Back to the Road	News	12/17, 8	(0.7)

75. Design Analysis, Dimensioning

Geometric and Positional Tolerance Symbol System	Pohs	1/30, 102	(7.0)
Automated Design—Electronic Relief from Routine	(Article)	2/13, 150	(4.0)
Value Engineering	Bowser	5/7, 122	(8.0)
Assigning Tolerances by Dynamic Programing	Moy	5/21, 215	(4.0)
True Position Dimensioning	Pohs	7/2, 124	(5.0)
Determining Co-ordinate Tolerances	Eaton	8/27, 185	(1.0)
MMC Concept in Size and Location Tolerancing	Stanley	9/24, 160	(6.0)
Computers Solve Problems by Holding a Conference	News	1/30, 10	(0.6)
Computer Talks on the Telephone to Answer Questions	News	2/27, 14	(0.6)
Plug-Together Units Form Fastest Computer for Any Problem	News	4/23, 14	(1.0)
Computer-Monitored Data Are Superimposed on Filmed-Data Display	News	5/21, 12	(0.5)
Miniscule Marvels	News	6/4, 30	(0.7)
Cost-Cutting Design Changes are Spelled Out for Automakers	News	6/18, 8	(1.0)
Dimensional Analysis Substitutes for Lunar Road Test	News	7/2, 14	(0.5)
Quiktran: 40 Phone-In Stations Share a Computer's Time	News	8/27, 8	(0.5)
Apollo-Watching	News	8/27, 22	(0.6)
Data Compressor Slices No-Change Signals from Satellite's Message	News	10/22, 10	(0.5)
"Casual Conversations" with a Computer May Help GM Design Cars	News	11/5, 6	(1.3)
Go-Anywhere Spacecraft May Evolve from Manned Orbiting Station Design	News	12/3, 6	(0.7)

76. Basic Sciences

Heat and Gas Laws	Henry	6/4, 151	(3.0)
Introduction to Cryogenics	Vance	10/8, 169	(24.0)
Scrambling Technique Produces Photos Without a Lens	News	1/2, 6	(1.0)
Crystal Switch Deflects the Beam	News	2/13, 14	(0.6)
Optically Compensated Lens: 1000X Zooming and Never Out of Focus	News	4/23, 10	(0.7)
Gas Team Bounces off Hot Plate To Form a Well-Mannered Plasma	News	5/7, 10	(0.5)
Capsule Enters Atmosphere at Home-From-the-Moon Speed	News	5/7, 14	(0.7)
Second Sound May Carry Energy Through Solids	News	7/16, 10	(0.5)
New Mohole Tools Start Drilling Tests	News	11/5, 10	(0.6)
Fiber Optics Gives Needle's Eye View of Living Tissue	DIA	1/30, 95	(1.0)
Wide Angle Optics Obsolete the Window	DIA	6/4, 120	(2.0)
Traveling Tower Guides Track Leveler	DIA	12/17, 136	(2.0)
Xenon Lamp Gives Tank 24-hr Working Day	DIA	12/17, 138	(1.0)

77. Experimental, Advanced Design

Man's Race for the Ocean Bottom, Part 1: Masks and Mouthpieces	Barnes	3/12, 136	(6.0)
Man's Race for the Ocean Bottom, Part 2: Homes and Gardens	Barnes	3/26, 154	(6.0)
Space Station Uncertainty	Stevenson	7/16, 128	(4.0)
Robots	Barnes	11/9, 150	(7.0)
Instrumentation and Measurement	Simpson	12/3, 174	(4.0)
Delta-Shaped Shuttle	News	1/16, 22	(0.6)
"Odd" Vehicle Proposed for Landing Crew from Mars	News	1/30, 6	(1.0)
A Ford Will Race at LeMans	News	1/30, 22	(0.5)
Close-Ups of the Moon	News	1/30, 23	(0.5)
Instrumented Wheels Pinpoint Sail Strength Characteristics	News	2/27, 10	(0.7)
Advanced X-15: Proven Space Tool Takes on New Jobs	News	3/12, 10	(1.0)
"Instant Infantry" Fights Anywhere Within 45 Minutes	News	3/12, 14	(0.9)
36-Man Orbiting Laboratory Wrings Benefits Out of Zero Gravity	News	4/9, 8	(0.7)
Lifting-Body Vehicle Passes Deep-Diving Tests	News	4/23, 8	(0.6)
Late Entry in the V/STOL Race	News	4/23, 23	(1.0)
Electric Roundabout Pivots on a Diamond	News	5/7, 6	(0.8)
Fast-Settling Cone Cradles a Paratrooper	News	5/7, 14	(0.6)
Fixed Wing Aircraft Would Land Like Helicopter	News	6/4, 14	(0.7)

Engineering Management, Personal

81-84. Engineering Department Operations

85, 86. Technical Literature, Patents

87. Personal and Professional

Specific Machines and Equipment

911. Ordnance, Missiles

912. Machinery

914. Automotive, Rail, Marine

914. Aircraft, Space Vehicles

Army Presses for Air Mobility	(Article)	2/13,	160	(5.0)
The All-Purpose Airplane	(Article)	12/3,	134	(6.0)
Manned Orbital Laboratory	News	2/27,	22	(0.8)
Personal Rocket Flight	Roach	12/17,	130	(6.0)
Astrorocket	News	3/26,	22	(0.7)
Lunar Landing Will Be Made at Langley	News	7/2,	6	(0.6)
Mariners "Buddy-Up" for the First Trip to Mars	News	9/10,	6	(1.0)
Three New Aircraft Take to German Skies	News	10/8,	26	(1.0)
Unmanned Tender Would Handle General Maintenance in Space	News	10/22,	8	(0.5)
LEM Trainer Will Duplicate Everything But Moon Dust	News	12/3,	14	(0.8)

915. Instruments

Cigarette Pack Beams X-Rays from Radioisotope Source	News	5/7,	10	(0.5)
Camera Catches Lite Crashers	News	6/18,	28	(0.5)
Clean Collector Will Gather Dust With Open Arms	News	7/2,	14	(0.5)
Collective "Image" Counts Particles	Scan	1/30,	109	(1.0)
Shadows Tally Particles According to Size	Scan	2/13,	173	(0.5)
Pyramid Senses Position	Scan	3/26,	177	(0.5)